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ANNUAL REPORTS
OF THE
NEW MEXICO
COLLEGE OF AGRICULTURE

—AND—
MECHANIC ARTS,
COMPRISING THE
Seventh and Eighth Annual Reports 96-7
of the Morrill Fund,
Eighth and Ninth Annual Reports of the Hatch
Fund,
Eighth and Ninth Annual Reports of the Terri-
torial Funds.

1898.
DONA ANA COUNTY REPUBLICAN,
Las Cruces, N. M.

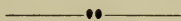


ANNUAL REPORTS
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NEW MEXICO
COLLEGE OF AGRICULTURE
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torial Funds.



1898.
DONA ANA COUNTY REPUBLICAN,
Las Cruces, N. M.

AGRICULTURAL EXPERIMENT STATION,

Mesilla Park, New Mexico.

Eighth Annual Report of the Board of Control to the Governor
of the Territory, under act of Congress of March
2, 1887, Establishing Agricultural
Experiment Stations.

Hatch Fund—For support of Experiment Stations.
1896=1897.

LETTER OF TRANSMITTAL.

MESILLA PARK, Dec. 1st, 1897.

HON. MIGUEL A. OTERO,
Governor of New Mexico.

Sir:—I have the honor to transmit to you, herewith, the
Eighth Annual Report of the Board of Regents of the New
Mexico College of Agriculture and Mechanic Arts, concerning
the Agricultural Experiment Station connected therewith.

Respectfully,

DEMETRIO CHAVEZ,
Secretary and Treasurer.

Director's Report.

The Officers of the Experiment Station for the year ending June 30th, 1897, were as follows:

CORNELIUS T. JORDAN, A. M., Director.

ARTHUR GOSS, M. S., A. C., Chemist.

JOHN D. TINSLEY, Biologist.

T. D. A. COCKERELL, Honorary Entomologist.

GEORGE VESTAL, Agriculturist and Horticulturist.

R. FRED HARE, M. S., Assistant Chemist.

FABIAN GARCIA, B. S., Meteorologist and Assistant Agriculturist and Horticulturist.

FRANK E. LESTER, Clerk.

HARVEY H. GRIFFIN, B. S., Superintendent of the San Juan Branch Experiment Station, Aztec, N. M.

F. O. KIHLEBERG, Superintendent of the Las Vegas Branch Experiment Station, Las Vegas, N. M.

The work has progressed in a satisfactory manner and includes much that is of great scientific and practical value. The tendency has been to concentrate effort upon a few leading lines, and to increase the amount of co-operative work done by the different members of the Station Staff. As far as possible the efforts of the Director and all of the Station workers have been directed to the development of a policy that would become definite and permanent.

The equipment has been strengthened by additions of needed machinery and by the completion of a greenhouse which adds much to the appearance and usefulness of the farm plant.

The following bulletins were issued during the year:—

No. 20—"Seeds," by Professor George Vestal.

No. 21—"Results of Experiments at the San Juan Sub-Station," by H. H. Griffin, Superintendent.

No. 22—"Alkali in the Rio Grande and Animas Valleys," by Arthur Goss and H. H. Griffin.

No. 23—"Sugar Beets," by C. T. Jordan, Director.

The different departments have been hampered in their work by a lack of funds, but it is believed that the amount available for operating expenses has been used to the best advantage.

The work at the Sub-Stations has been along the same lines as heretofore, and some interesting and valuable data has been secured.

So far nothing has been done to secure an adequate water supply and this remains a crying necessity.

Harmony has existed among the different station officers, and faithful and efficient service has been rendered by each one. The possibilities before us are numerous and great. Concentration of effort, wise economy in the use of the funds at our disposal, and the adoption of a fixed policy, will enable us to meet those responsibilities incident to the work and to turn them to good account.

I herewith submit reports from the different departments.

Very Respectfully,

CORNELIUS T. JORDAN, A. M.,

Director.

Division of Agriculture and Horticulture.

C. T. JORDAN, Director.

Sir:—I have the honor of submitting a brief outline of the work done on the Experiment Station farm during the year ending June 30, 1897.

The growing season of 1896 was in the main favorable for the growth of crops, although there was no water for irrigating purposes during the month of June. Later on however, there was enough water, and with the assistance of light rains most of the crops in the experiments mentioned in my last report matured, and much valuable data was collected and recorded in permanent books of the Station Farm.

The experiment with the thirteen one-acre plots of alfalfa,

to ascertain if possible the best time for sowing, the most profitable amount of seed to sow, the best method of sowing (drill or broadcast), with and without nurse crops, was completed during the past year. It is necessary to carry on experiments with most field crops through a series of years to be able to come to anything like accurate conclusions from the results obtained. In this experiment with alfalfa seeding it is believed valuable results were obtained with the one year's work. The land on which this experiment was conducted was rather poor and contained spots of adobe, sandy and loamy soils. In several of the plots there were spots of white alkali. All the plots contained some of each kind of soil, and in this respect might be said to be of uniform fertility. The land was plowed and pulverized at leisure times during the winter, and leveled or smoothed with home-made drag a few days before seeding. The thirteen plots were seeded January 28, 29, and 30, and irrigated January 30, 31, and February 1, 2, 3, 4, and 5. The weather following the irrigation was favorable to germination and by the 20th of February the young plants were up in all the plots. Germination was the best in loamy soil; that on heavy loam next best; followed by that on adobe; the very sandy spots showing the poorest germination. The young plants made their appearance first in the broadcasted plots, not being covered quite as deep as in the drilled plots. Although seed was sowed at only one date on the College farm, repeated observations were made on sowings in the neighborhood made at later periods. After comparing the results of the different times of sowing no other conclusion can be reached but that the early seeding, say from February 1st to March 1st, is the best time to sow alfalfa seed in this part of New Mexico.

The amount of seed used in the experiments was at the rate of 15, 20, and 25 pounds per acre. The conclusions reached were that when the ground is well prepared, 15 pounds of seed was all that was necessary; only one exception to this can be made, and that is where the soil is very sandy, 20 pounds being required, as many of the young plants died on such soil before June 1st, from drought and heat. More than 15 pounds on well

prepared loamy soil is seed thrown away.

The best method of seeding was found to be with the drill. The seed is covered at a uniform depth, evenly distributed, and being on the average in the ground deeper than the broadcasted seed, the young do not die out as badly as they do when the seeds are sown broadcast. On seven of the plots wheat, oats, barley and rye were used as a nurse crop. These were used at the rate of one half bushel of seed per acre. The nurse crops did not seem to either benefit or injure the alfalfa. They were cut for hay when the grain was in the milk. It did not yield much, but if the wheat had been allowed to ripen as it was in another plot of alfalfa not in this experiment there would have been some profit in the so called nurse crop without any material injury to the young alfalfa. This is the only profitable way to procure a crop of any kind with newly sown alfalfa. These plots are laid off permanently with irrigating borders between each acre plot, and can be used for crop and feeding experiments at any time.

The other experiments with sweet potatoes, garden peas, forage plants, wheat, corn, canaigre, etc., were carried out and much valuable data secured. These experiments are being continued during the growing season of 1897 with the view of making the conclusions reached of more value than when the experiments are carried through but a single season.

In addition to the experiments which are being continued from last year, work with tomatoes and sugar beets has been undertaken. This spring two acres of sugar beets were planted, choice seed having been secured in this country and Europe. A good stand has been secured and the plots are so divided as to allow careful experiments to be made on methods of seeding, cultivating, irrigating and harvesting.

Data is still being carefully collected in the orchard and vineyard, noting the time of blossoming, growth, and ripening of the different varieties of fruit. A description of each variety as it developes in this climate is also recorded. As the principal drawback to fruit culture in this locality is the late spring frosts this data as it relates to the time of blooming will be invaluable

to the tree planter when published.

The introduction and trial of ornamental plants has received considerable attention and many beautiful plants, shrubs and trees have been found which will do well in this climate. This work will be continued, as there is a need of a greater variety of plants for ornamental planting which will thrive in this climate.

An extensive collection of grain and other products was furnished by this department for exhibition at the Nashville Exposition.

A popular bulletin on "Seeds" was issued during the year which attempted to furnish a lot of valuable information to farmers whose knowledge on such subjects must be necessarily limited.

The farm is very much in need of a stable and tool house. The structure now used for that purpose is only a temporary shed built against the east side of the "seed house." It is in poor repair and totally unfit for that purpose.

A wind mill and tank would be a great acquisition, as the water used for stock and the green house is now pumped by hand.

Another improvement which should be made is the plastering of the outside of the farm building commonly called the "seed house," as well as the painting of the gables, door frames and other wood work which have not yet been painted.

GEORGE VESTAL.

DIVISION OF CHEMISTRY.

C. T. JORDAN, Director.

Sir:—I have the honor to submit a statement of the principal lines of work carried on in the Chemical Department of the Experiment Station during the year ending June 30th, 1897. They are as follows:—

1.—An investigation of the alkali of the Rio Grande and Animas valleys. The results of this investigation were published in bulletin No. 22 of the New Mexico Station.

2.—A continuation of the study of the food of the native

people of the territory, and the study of the composition of an average New Mexican range steer. This work was conducted under the direction of the Office of Experiment Stations, U. S. Department of Agriculture and will be published as a bulletin of the department.

3.—As a part of the duties of the A. O. A. C. Reporter on Soils and Ash, considerable work was done in the laboratory on new methods for the analysis of soils. Samples were secured from Rothamsted, England and the Pennsylvania Experiment Station for this work. Some interesting results were secured which will be published in the proceedings of the A. O. A. C. for 1897.

4.—Considerable preliminary work has been done in preparing for the sugar beet investigation to be carried on in the territory during the growing season of 1897.

5.—Miscellaneous analyses have been made during the year, as usual, of a considerable number of samples of various substances. Between July 1st, 1896 and July 1st, 1897, 134 regular numbered samples have been analyzed.

The equipment of the department has been fully maintained during the year, and in some respects slightly increased.

Very Respectfully,

ARTHUR GOSS.

REPORT OF THE ENTOMOLOGIST.

(YEAR 1896-'97.)

The principal lines of work which occupied the Entomologist were as follows:—

- (1.) Studies of the Codling Moth, with a view to discovering some method of preventing its ravages in New Mexico. These studies were made chiefly in Mesilla, and have not been concluded at the time of writing. The full particulars of the work done will be found in a Bulletin issued by the Station in 1898.
- (2.) Studies of Life-Zones. Part of the results appeared in a Bulletin published in 1897, but after the close of the year

covered by this report. Much the greater part of the data remains in manuscript at the time of writing, awaiting publication.

In July, 1896, a very successful trip was made to Rincon, Colorado, Deming, Silver City, Pinos Altos and Lone Mountain. In May, 1897, a trip was made to El Paso and Juarez.

- (3.) Studies of Scale Insects. This included not only the examination of various species (several new) found in New Mexico, but also the study and identification of numerous specimens submitted by other Experiment Stations, and by the Department of Agriculture. In view of the interest being taken in measures to prevent the introduction of injurious scale-insects from abroad, an essay was written (No. 31 in list of titles below) setting forth some of the facts known to the Entomologist, and this was printed by the horticulturists of California, and widely circulated. The collection of Scale Insects was much increased during the year.
- (4.) Studies of Wild Bees. This work, originally undertaken with educational ends in view, has proved to yield facts of much value in elucidating the life-zones and faunulæ. Many papers were published containing descriptions of new bees, and the collection was greatly increased.

Further particulars will be found in the various publications cited below, and also in my monthly reports to the director, which are all on file at the College.

The Entomologist has published 103 articles and notes during the year, of which the following are the more important:—

1. The smaller Bees of the genus *Andrena* found in New Mexico. *Canad. Entom.*, July 1896, pp. 179-184.
2. The Bees of the genus *Andrena* found in New Mexico. *Ann. Mag. Nat. Hist.*, 1896, pp. 78-92.
3. New Bees of the genera *Xenoglossa* and *Podalirius* (*Anthophora*). *Canad. Entom.*, 1896, pp. 191-197.
4. A Check-List of the Coccidæ. *Bull. Ills. State Lab. of Nat. Hist.*, Vol. IV, pp. 318-339.

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5. Three new Bees of the genus *Calliopsis* from Colorado. Entom. News, Sept. 1896, pp. 221-223.
 6. A gall making Coccid in America. Science, Sept. 4, 1896, pp. 299-300.
 7. Still another *Aphilanthops*. Canad. Entom., 1896, pp. 221-222.
 8. New Coccidæ from Massachusetts and New Mexico. Canad. Entom., Sept. 1896, pp. 222-226.
 9. Notes and descriptions of the New Coccidæ collected in Mexico by Prof. C. H. T. Townsend. Bulletin 4. Tech. Ser., Div. Ent., Dept. Agriculture, pp. 31-39.
 10. Some Coccidæ found by Mr. Alex. Craw in the course of his Quarantine Work at San Francisco. t. c., pp. 42-46.
 11. Some New Species of Japanese Coccidæ, with notes. t. c. pp. 47-56.
 12. Specific characters among the Mutillidæ. Nature, Sept. 17, 1896, p. 461.
 13. Some additional species of *Prosapis*. Psyche, 1896, pp. 437-439.
 14. The Seventy-second *Perdita*. Entom. News, 1896, pp. 255-256.
 15. New North American Bees. Ent. Mo. Mag., 1896, pp. 218-221.
 16. New Bees of the genus *Melissodes*. Entom., 1896, pp. 304-308.
 17. Descriptions of New Bees collected by Prof. C. H. T. Townsend in the State of Vera Cruz. Ann. Mag. Nat. Hist., 1896, pp. 282-295.
 18. New species of *Nomada* and *Chyphotes*. Canad. Entom., 1896, pp. 284-285.
 19. Scientific Research as a Means of Education. Inland Educator, Vol. 3, pp. 246-249.
 20. The Codling Moth. S. W. Farm and Orchard, Dec. 1896, Jan. 1897, May 1897.
 21. A Mexican *Aleurodicus*. Canad. Entom., 1896, p. 302.
 22. New Species of Insects, taken on a trip from the Mesilla

Valley to the Sacramento Mts., New Mexico. Jn. N. Y. Ent. Soc., 1896, pp. 201-207.

23. Coccidæ or Scale Insects. Bull. Jamaica, Botan. Dept. 1896, pp. 256-259.

24. Some species of *Perdita* from Nebraska. Entom. News, Jan. 1897, pp. 23-24.

25. Descriptive Notes on two Coccidæ. Entomologist, Jan. 1897, pp. 12-14.

26. On the Mexican Bees of the genus *Augochlora*. Canad. Entom., 1897, pp. 4-6.

27. *Dactylopius*, or Mealy Bugs, with a new species. Science Gossip, 1897, pp. 199-201

28. The Bees of the genus *Colletes* found in New Mexico. Ann. Mag. Nat. Hist., 1897, pp. 39-52.

29. Scale Insects: Coccidæ associated with Ants. Sci. Gossip, 1897, pp. 239-241.

30. A parasite of Hemipterous Eggs. Canad. Entom., 1897, pp. 25-26.

31. On the Danger to American Horticulture from the Introduction of Injurious Insects. 4pp.

32. New Forms of *Osmia* from New Mexico. Canad. Entom., 1897, pp. 65-66.

33. Further notes on *Augochlora*. Canad. Entom. 1897, pp. 68-70.

34. A Southern Race of *Datana perspicua*; var. *mesillæ*. Psyche, 1897, p. 41.

35. Specific Characters. Nature, March 4, 1897, pp. 414-415.

36. Definite Variations. Nature, March 11, 1897, p. 439.

37. Changes in Faunæ due to Man's Agency. Nature, March. 18, 1897, pp. 462-463.

38. [With W. J. Fox] New Fossorial Hymenoptera from New Mexico. Proc. Acad. Nat. Sci. Phila., 1897, pp. 135-141.

39. The Third American Kermes. Ent. News, 1897, pp. 94-95.

40. Notes on New Coccidæ. Psyche, 1897, pp. 52-53.

41. [With G. B. King] New Coccidæ found associated with Ants. *Canad. Entom.*, 1897, pp. 90-93.
42. A New Mealy-bug [*Dactylopius pseudonipæ*]. *Sci. Gossip*, 1897, p. 302.
43. The Function of Disease in the Struggle for Existence. *Nature*, April 8, 1897, pp. 534-535.
44. Some New Hymenoptera from the Mesilla Valley, New Mexico. *Ann. Mag. Nat. Hist.*, 1897, pp. 394-403.
45. A New *Coelioxys* from New Mexico. *Can. Entom.*, 1897, p. 120.
46. Notes on Scale Insects. *California Fruit Grower*, May 8, June 5 and July 3, 1897.
47. New Hymenoptera from New Mexico, U. S. A. *Entom.*, 1897, pp. 135-138.
48. Physiological Specific Characters. *Nature*, May 6, 1897, pp. 11-12.
49. The Utility of Specific Characters. *Nature*, May 13, 1897, p. 31.
50. The Virginia Colony of *Helix nemoralis*. *Science*, June 25, 1897, pp. 985-986.
51. A New *Aleurodes* on *Rubus* from Florida. *Journ. N. Y. Ent. Soc.*, June 1897, pp. 96-97.

Respectfully submitted,

T. D. A. COCKERELL,

(Entomologist.)

DIVISION OF BIOLOGY.

C. T. JORDAN, Director,

Sir:—The work of the Biologist for the year 1896-'97 has been along the following lines:—

(a.)—A card catalogue of the flowering-plants and ferns in the herbarium has been prepared.

Additions have been made to the herbarium by collection; and about 300 specimens have been added to the herbarium by exchange, mostly of plants from the eastern states.

(b.)—Work upon *Dactylopius* and allied genera of coccids has been begun, with a view to monographing these genera.

Since many species of these genera are among the most troublesome insect pests, it is very necessary that we become familiar, not only with those native to the United States, but those of the whole world; in order that we may guard against the importation of injurious species.

(c.)—Answering inquiries regarding injurious insects and other miscellaneous correspondence; about fifty such letters have been written.

Respectfully submitted,

JOHN D. TINSLEY,

Station Biologist.

TREASURER'S REPORT.

Agricultural Experiment Station of the New Mexico College
of Agriculture and Mechanic Arts.

In Account With

THE UNITED STATES APPROPRIATION, 1896-'7.

Dr.

To receipts from the Treasurer of the United States
as per appropriation for fiscal year ending June
30, 1897, as per Act of Congress approved March
2, 1887\$15,000 00

Cr.

ABSTRACT.

By Salaries	1	....\$ 8,252 03
Labor	2	.... 2,604 90
Publications	3	.... 323 03
Postage and stationery.....	4	.... 212 56
Freight and express.....	5	.... 267 94
Heat, light and water	6	.... 101 76
Chemical supplies	7	.... 381 71
Seeds, plants, and sundry supplies	8	.... 479 79

ABSTRACT.

Fertilizers	9	....	62	40
Feeding stuffs.....	10	....	92	74
Library.....	11	....	136	83
Tools, implements, and.....machinery.	12	....	182	62
Furniture and fixtures.....	13	....	131	97
Scientific apparatus.....	14	....	55	72
Live stock	15	....	"	"
Traveling expenses	16	....	754	50
Contingent expenses	17	209	50
Building and repairs.....	18	750	00
Balance			"	"

Total.....	\$15,000	00
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SUPPLEMENTARY STATEMENT.

To Receipts from other sources than
the United States, for the year
ending June 30, 1897:

Farm products.....	\$	163	40
From Territory*		14335	18

Dr. \$14498 58

By Building and Repairs.....	\$14335	18
Student Labor.....	163	40

Cr. \$14498 58

*Note.—Of this amount \$14250 was received for buildings. Contract has been let for two buildings for an amount not exceeding this sum. Only one of these buildings, the larger one, is for Station purposes.

AGRICULTURAL EXPERIMENT STATION,

Mesilla Park, New Mexico.

Ninth Annual Report of the Board of Control to the Governor
of the Territory, under act of Congress of March
2, 1887, Establishing Agricultural
Experiment Stations.

Hatch Fund—For support of Experiment Stations.
1897=1898.

LETTER OF TRANSMITTAL.

MESILLA PARK, Dec. 1st, 1898.

HON. MIGUEL A. OTERO,

Governor of New Mexico.

Sir:—I have the honor to transmit to you, herewith, the
Ninth Annual Report of the Board of Regents of the New
Mexico College of Agriculture and Mechanic Arts, concerning
the Agricultural Experiment Station connected therewith.

Respectfully,

PHILIP H. CURRAN,

Secretary and Treasurer.

Director's Report.

The Station Staff for the year ending June 30th, 1898, was composed as follows:

C. T. JORDAN, A. M., Director.

ARTHUR GOSS, M. S., A. C., Chemist and Vice-Director.

GEORGE VESTAL, Agriculturist and Horticulturist.

JOHN D. TINSLEY, Biologist.

T. D. A. COCKERELL, Entomologist.

C. H. T. TOWNSEND, Biogeographer and Systematic Entomologist.

R. FRED HARE, M. S., Assistant Chemist.

FABIAN GARCIA, B. S., Assistant Agriculturist and Horticulturist.

A. M. HOLT, M. S., Second Assistant Chemist.

HUMBOLDT CASAD, Assistant Agriculturist and Horticulturist.

F. E. LESTER, Clerk.

ELIZABETH WICKHAM, Assistant Clerk.

CHARLES E. MEAD, B. S., Superintendent of San Juan Sub-Station.

JOHN THORNHILL, Superintendent of Las Vegas Sub-Station.

The work done by the Experiment Station for this year has been in many respects the most important so far of any done by the Station, and quite a number of very gratifying results have been obtained. Among the very valuable experiments that have been made, particular attention may be called to those looking to the destruction of the codling moth, sugar beet experiments, experiments in irrigation, and the beginning of the work of plant physiology. All of these lines of work are still being carried on. During this year there has been completed a most excellent building containing 17 rooms, most of which are devoted to Station work. This building gives some of the much needed room, and places us in a very much better condition to do good work. During the year the following bulletins have been issued and published:—

No. 24—"Life Zones in New Mexico," by Professor T. D. A. Cockerell.

No. 25—"Preliminary Notes on the Codling Moth," by Professor T. D. A. Cockerell.

No. 26—"New Mexico Sugar Beets—1897," by Professor Arthur Goss.

No. 27—"Report on Plums", by Professor George Vestal and Fabian Garcia

We still need a good and sufficient supply of water for the Experiment Station, and it is proposed to make an earnest effort when the Legislature meets next winter to have this long felt want supplied. It is absolutely necessary for us to have this water in order that the experiments in irrigation which we hope to make, may be successfully carried on. The lines of work mentioned in our last report are almost without exception being carried on to completion. I herewith append reports from the different Station workers.

CORNELIUS T. JORDAN, Director.

DIVISION OF AGRICULTURE AND HORTICULTURE.

C. T. JORDAN, Director.

Sir:—I beg leave to submit the following report of the work done on the Experiment Station farm for the year beginning July 1st, 1897, and ending June 30th, 1898.

The season of 1897 was favorable for the growth of crops, and as it was a good fruit year in the valley we secured a large amount of valuable data from the College orchard, many of the varieties perfecting their fruit for the first time in our orchard. This data will be published in due time and will be of great value to tree planters. The peaches and plums which have proved the best are those which bloom after the late spring frosts. We can recommend the following varieties of plums: Clyman, Wild Goose, Pond's Seedling, Yellow Egg, Silver Prune, Robe de Sargent, Imperial Gage, German and French Prune. The following peaches have proved the best here: Alexander, Hines Surprise, Jessie Kerr, Early Rivers, Crawford's Early, Crothers, Wonderful, Crawford's Late.

The sugar beets mentioned in my last report matured.

although a good many of them died, we suppose by hot weather, as the behavior of the crop during the entire summer seemed to indicate that this part of New Mexico is a little too warm for successful sugar beet culture.

The analysis of beets grown in different parts of the Territory made by the Chemist, show the beets grown in northern New Mexico run higher in saccharine matter than those raised in the southern, although the latter filled all the factory requirements.

The beets in the experimental plots were allowed to remain in the ground over winter and analysis made at intervals of one month. The beets gained in saccharine matter continually until they began to grow in the spring. This would seem to be a great advantage as the beets would not have to be dug and stored to protect against cold as is the case in part of the north.

The experiments in sugar beets are being continued this year (1898), and at this date are more promising than last year.

The garden peas, sweet potatoes, tomatoes, wheat, corn, fodder crops all matured and valuable data was collected.

The work for 1898 is to a great extent the same as last year, it being impossible to form conclusions which would be of any value, with one or two seasons' work.

One bulletin, "Report on Plums," has been issued by the department during the year.

Respectfully submitted,

GEORGE VESTAL.

DIVISION OF CHEMISTRY.

MESILLA PARK, N. M., Sept. 1st, 1898.

C. T. JORDAN, Director.

Sir:—Below will be found a brief outline of the work of the Chemical Department of the Experiment Station for the year ending June 30th, 1898.

During the Christmas holidays the department was moved from the former crowded quarters in the basement of the main college building to the elegant new quarters provided on the first floor of the new Science hall. A large portion of the work of the department during the year has been in planning and fitting up the new laboratories.

As considerably more floor space has been assigned to the department, it has been possible to make the separation of the College and Station work much more complete than in the past.

Two good sized laboratories, and a well lighted room used as office, balance room and library, have been set apart for the Station work. Besides the above, there has also been provided for the use of the department, a conveniently located store room, and a brick storage room at a distance from the building in which is kept gasoline and other combustible and explosive substances.

Owing to the fact that the funds available have been limited in amount, it has been necessary to employ the working force of the department to a very large extent in fitting up the new laboratories. This has, necessarily, resulted in less time for strictly chemical work, but on the other hand, it has resulted in a more convenient arrangement of the laboratory fittings and fixtures than would otherwise have been possible. There is considerable of this kind of work still to be done.

The equipment of the department has been very materially increased during the year. In the office a large book case and a bulletin case have been put in; also a table for the station chemical balances which is supported on brick piers in contact with the ground, thus doing away with the effect of floor vibration in weighing. A large new double work desk has been put in one of the laboratories which, with two desks brought over from the old laboratories, makes three well equipped desks for station use. A new sink has also been added, making two for the exclusive use of the station work. A large fume closet and a brick sheet iron covered furnace table as well as several new furnaces have also been added.

Besides the above, a new 200 light gas machine with an automatic regulator whereby the gas is kept of uniform quality has been put in for the exclusive use of the Science building.

As the apparatus has been conveniently located, and is under the direct control of the Chemical department, there should be little trouble in the future on account of lack of gas. Gas, as well as water, has been piped to all laboratories.

The general equipment of the department, other than that already mentioned, has been fully maintained and slightly increased in some respects.

The most prominent feature of the Station chemical work during the year has been in connection with the sugar beet investigation. In the spring, beet seed was sent to 152 farmers of the territory. The beets produced therefrom were analyzed upon receipt in the laboratory. Beginning the middle of September, 31 plots of beets grown on the Station farm were analyzed once each month. This series, in a number of cases ran until the middle of March. In all, 274 samples of beets were analyzed during the season. The results from a number of localities in the territory were very encouraging indeed as will be seen by referring to Station bulletin No. 26 in which the details of the investigation were published.

Besides the sugar beet work, a considerable number of analyses were made during the year, as usual, of waters, soils, and various other substances from different parts of the territory. In all, 338 samples were analyzed during the year as compared with 134 for 1896-97.

Very respectfully,

ARTHUR GOSS.

REPORT OF THE ENTOMOLOGIST.

(YEAR 1897-98.)

The work of the previous year has been continued. A trip was made to Paraje in the spring, to investigate the supposed extinction of the Codling moth at that place. There has been some work done in two new subjects:—(1.) A study of the mammals of New Mexico, in conjunction with Mr. C. M. Barber. (2.) A study of the grasshoppers, etc. (Orthoptera) of New Mexico.

Some pot experiments, to test the fertility of various New Mexico soils, were conducted in co-operation with Mr. F. Garcia. This work was suggested by some studies made in connection with the life-zones.

The principal publications of the year have been as follows:

1. New and Little-known Coccidæ from Florida. Psyche, July 1897, pp. 89-90.
2. Two forms of Fluted Scale. Psyche, July 1897, p. 94.
3. [Review of] The Present Evolution of Man. By G. Archdall Reid. Science, July 2, 1897.
4. Contributions to Coccidology 11. American Naturalist. July 1897, pp. 588-592.
5. The San Jose Scale and its Nearest Allies. Bull. 6, Tech. Ser., Div. Ent., U. S. Dept. Agriculture, pp. 31, figs. 15.
6. [Review of] Report on Vital and Social Statistics in the United States, at the 11th Census. Pt. 11. By J. S. Billings. Science, July 30, 1897.
7. [Review of] The Coccidæ of Ceylon, by E. E. Green. Amer. Nat., Aug. 1897, pp. 701-704.
8. Letters to Teachers and Students. I-VII. Inland Educator, 1897-1898.
9. New and Little-known Bees. Trans. Amer. Entom. Society, 1897, pp. 144-162.
10. The Bees of the genus *Halictus* found in New Mexico. I. Trans. Amer. Entom. Society, 1897, pp. 163-168.
11. The Food-plants of Scale Insects (Coccidæ). Proc. U. S. National Museum, XIX, pp. 725-785.
12. The New Mexico Bees of the genus *Heriades*, and a new *Halictus*. Ann. Mag. Nat. Hist., Aug. 1897, pp. 135-143.
13. Life-zones in New Mexico. Bull. 24. N. M. Agr. Exp. Sta., Aug. [publ. Sept. 6.] 1897.
14. The New Mexico species of *Anthidium*. Canad. Entom., Sept. 1897, pp. 220-223.
15. A New Attid Spider. Canad. Entom., Sept. 1897, pp. 223-224.
16. Notes on the Coccidæ, a Family of Homoptera, with a table of the species hitherto observed in Brazil. Revista do Museu Paulista. 1897.
17. A New species of Coccidæ of the genus *Lecaniodiaspis*. Ent. News, Sept. 1897, pp. 161-162.
18. Notes on New Mexican Flowers and their Insect Visitors. Botan. Gazette, Aug. 1897, pp. 104-107.

19. The Green scale of Coffee. Garden and Forest, Sept. 1, 1897.
20. Species or Subspecies? Nature, Aug. 26, 1897.
21. Coccidæ, or Scale Insects. X. Bull. Bot. Dept. Jamaica, 1897, pp. 107-109.
22. The Aphididæ of the Black-timber Zone in Colorado. Entom. News. Oct. 1897, pp. 201-202.
23. Biological notes on some Coleoptera from New Mexico. Journ. N. Y. Ent. Soc., Sept. 1897.
24. "The Present Evolution of Man." Science, Oct. 8, 1897.
25. Directions for Collecting and Preserving scale Insects (Coccidæ). Pt. I of Bull. 39, U. S. National Museum, 1897, pp. 9.
26. An Experience with Paris Green. Bull. 9, Div. Ent., Dept. Agriculture, p. 25.
27. Notes on Slugs. Nautilus. Nov. 1897, pp. 75-79.
28. Abnormal leaves and Flowers. Botan. Gazette, Oct. 1897, pp. 293-294. 2 figs.
29. New and Little-known North American Bees. Proc. Acad. Nat. Sci. Philadelphia, Sept. 1897, pp. 334-355.
30. Coccidæ, or Scale Insects. XI. Bull. Bot. Dept. Jamaica, 1897, pp. 149-151.
31. Some new and Little-known Coccidæ collected by Prof. C. H. T. Townsend in Mexico. Canad. Entom., Nov. 1897, pp. 265-271.
31. On the value of Section-Names. Bot. Gazette. Nov. 1897, p. 378.
32. Insects and Flowers. Natural Science. Nov. 1897. p. 358.
33. Physiological species. Entom. News. Dec. 1897. pp. 234-236.
34. A New Lecanium on Magnolia from Florida. Psyche, Dec. 1897. p. 152.
35. On the generic position of some bees hitherto referred to Panurgus and Calliopsis. Canad. Entom., Dec. 1897, pp. 287-290.
36. New species of Andrena from North America. Entomologist, Dec. 1897, pp. 305-309.

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37. New Insects from Embudo, New Mexico. *Ann. Mag. Nat. Hist.*, Dec. 1897, pp. 510-515.
 38. The Codling Moth. *S. W. Farm and Orchard*, Jan. 1898, pp. 3-5.
 39. A New *Orthezia*. *Canad. Entom.*, Jan. 1898, pp. 19-20.
 40. Further Notes on Coccidæ from Brazil. *Revista do Museu Paulista*, 1897, pp. 383-384.
 41. Synopsis of the North American Bees of the genus *Nomia*. *Entom.*, Feb. 1898, pp. 31-33.
 42. Some Bees of the genus *Megachile* from New Mexico and Colorado. *Ann. Mag. Nat. Hist.*, Feb. 1898, pp. 125-130.
 43. The Insect Visitors of Flowers in New Mexico. I. *Zoologist*, Feb. 1898, pp. 78-81.
 44. Observations on Mr. Barlow's Bill, now before Congress, to provide rules and regulations governing the importation and inspection of nursery stock. Mimeograph circular, reprinted in various journals and newspapers. March, 1898.
 45. Two New Scale-Insects quarantined at San Francisco. *Psyche*, March 1898, pp. 190-191.
 46. Preliminary notes on the Codling Moth. *N. M. Agr. Exp. Sta. Bull.* 25. Feb. [publ. March 5,] 1898.
 47. New and Little-known Bees. *Canad. Entom.*, March 1898, pp. 50-53.
 48. Two New Scale-Insects. *Entom.*, March 1898, pp. 65-66.
 49. The San Jose Scale. *Entom. News*, April 1898, pp. 95-96.
 50. Three New Coccidæ of the subfamily Diaspinæ. *Psyche*, April 1898, pp. 201-202.
 51. Notes on some bees of the genus *Andrena* from Hartford, Connecticut. *Canad. Entom.*, April 1898, pp. 103-104.
 52. Further notes on *Andrena*. *Entom.*, April 1898, pp. 88-90.
 53. [Review of] Botanical observations in the Azores. By Wm. Trelease. *Science*, April 15, 1898, pp. 538-539.
 54. New and Little-known bees from Washington State. *Proc. Acad. Nat. Sci. Phila.*, 1898, pp. 50-56.

55. [With J. D. Tinsley.] On a New Wax-producing insect found in Jamaica. Journ. Institute of Jamaica, 1897. [publ. 1898.] p. 468.

56. [Review of] Darwin, and after Darwin. III. By J. G. Romanes. Science, April 29, 1898.

57. Note on *Mariaella dussumieri*. Nautilus, May 1898, pp. 9-10.

58. Quarantine against Injurious Insects. Entom. News, May 1898, pp. 119-120.

59. [With C. M. Barber.] A New Weasel from New Mexico. Proc. Acad. Nat. Sci. Phila., 1898, pp. 188-189.

60. The Diverse Floras of the Rocky Mountain Region. Science, May 6, 1898, pp. 625-627.

61. [Review of] Report on the Work and Expenditures of the Agricultural Experiment Stations for the year ended June 30, 1897. By A. C. True. Science, May 27, 1898.

62. A new scale insect of the genus *Lecanium*. Entom. News, June 1898, pp. 145-146.

63. Three new Aleurodidæ from Mexico. Psyche, June 1898, pp. 225-226.

64. New Bees from New Mexico. Canad. Entom., June 1898, pp. 146-148.

65. [Review of] A Classified Catalogue of the Land Shells of North America. By H. A. Pilsbry. Science, June 10, 1898.

66. Life-Zones, and Injurious Insects. Bull. 2, N. M. Bureau of Immigration.

67. Some new Coccidæ of the subfamily Lecaniinæ. Entom., June 1898, pp. 130-132.

68. New Coccidæ from Mexico. Ann. Mag. Nat. Hist., June 1898, pp. 426-440.

Respectfully submitted,

T. D. A. COCKERELL.

(Entomologist.)

DIVISION OF BIOLOGY.

(1897-98.)

Work upon the new Science hall was begun during the summer of 1897, and a considerable portion of my time during the fall and winter was devoted to overlooking its construction. From the middle of December until the first of April, nearly the whole of my time was devoted to designing the new laboratory furniture, superintending its construction and placing in position. I have done the plumbing in the biological laboratories, thereby saving the Institution several hundred dollars.

The apparatus had all to be moved from the old quarters, and arranged in the new. Owing to the work mentioned above, there has not been as much regular station work done as would have been done otherwise.

The principal station work has been as follows:—

- a.—Adding to the herbarium by collection and exchange.
- b.—Continuation of the work, begun last year, on *Dactylopius* and its allies. Quite a number of specimens have been identified for other entomologists; several species which had not previously been collected here were collected and described; and much material and information of value has been accumulated. I would especially mention the collection of mounted slides of this group.

The following papers have been published in the "Canadian Entomologist" during the year:—

- 1st.—Two New Species of *Orthezia*.
- 2nd.—An Ant's-nest Coccid from New Mexico.
- 3rd.—Some New Species of Coccidæ. In "Psyche."
- 4th.—A New Ant's-nest Coccid.
- c.—In April work was begun on Transpiration of leaves, and evaporation from a free water surface.
- d.—The usual miscellaneous correspondence pertaining to the department has been conducted.

Respectfully submitted,

JOHN D. TINSLEY, Biologist.

PROF. C. T. JORDAN, Director of the Agricultural Experiment Station of New Mexico.

Sir:—I have the honor to report as follows concerning the work done in my department since I took charge April 1st, 1898.

1.—During the first two weeks in April I worked over, in conjunction with Professor Cockerell, the greater part of a large collection of Mexican Coccidæ, collected for the Agricultural Department by Mr. Albert Koebele and myself and sent to this Station for determination. The results of my work on this collection will soon appear in the Journal of the New York Entomological Society.

2.—During a two weeks' trip to southern Mexico, from middle of April to first of May, made at my own expense for purpose of bringing up my library and collections, I collected 75 pill boxes of Coccidæ, comprising probably over 50 species, collecting these at all possible points en route, going and coming. This collection is of much interest, revealing much important coccid material not before known. Some vials of alcoholic material, and some pinned insects were also collected.

3.—During the month of May, the work of getting my books, collections, and material into its quarters in Science Building, ordering material needed for the summer's field work, and arranging the whole in working order, was accomplished. Besides this, much preliminary work was done on Coccidæ, in the way of compiling a reference catalogue of American species, and a supplementary list of species described since last check-list, so as to be ready for systematic work on the group. Some field work was also done in collecting.

4.—During the month of June while engaged by permission of the Station Board, on work on the cotton weevil in Texas for the Agricultural Department, I collected a few hundred pinned specimens of insects, and a small collection of 15 or more pill boxes of coccidæ, all that could possibly be found in the region traversed, which is much poorer in coccid fauna than most parts of Mexico. Incidentally it may be stated that the results of my mission to Texas for the Agricultural Department were very satisfactory, the object being to experiment with the

view of finding a remedy for the cotton weevil. The three weeks' work resulted in demonstrating the success above all other remedies of a poisoned molasses solution for killing the weevils on the plants (molasses, arsenic and water); and the feasibility of killing the wintered-over weevils in spring on volunteer plants smeared with undiluted molasses and arsenic mixture.

5.—During the last of June to about the middle of July, preparations were made for the summer's field work in the White and Organ Mountains. Getting materials, provisions, wagon, horses, proper outfit, etc., ready took up nearly all of the time. Some collecting, and work on material was, however, done besides.

6.—The field work in the White and Organ Mountains extended from middle of July to end of first week in September, and was highly successful. Fifty-two cigar boxes were filled with pinned specimens of insects, comprising some 5000 or 6000 specimens. 250 vials were filled with alcoholic insects, of which 75 are ants, and the rest spiders, larvæ, phalangiids, myriopods, and miscellaneous, some of the material being of very especial interest and importance. Several pill boxes were filled with micro-insects, the result of sweepings, which were packed unmounted between layers of white velveteen. A dozen or two pill boxes of coccids, snails, etc., were collected, also several skins of small mammals with a dozen skulls; and a tank full of alcoholic reptiles, etc., embracing probably 30 or 40 specimens. A collection of 50 plants was made, on flowers or leaves of which the insects collected were taken, and specimens of insects all labeled so as to be connected with the plants found on. Careful notes of elevation, topography, distribution of plants, insects, etc., were made, to be made use of in working up the results of the collections secured.

7.—The work during the remainder of the present month (September) has been in labeling and beginning work of identifying the material collected. A considerable number of Diptera have been named by myself; certain Hymenoptera by Professor Cockerell, as also the snails in part; the plants by

Professor Wootton; and one or two sendings have been made to specialists for determination. The material so far worked up has proved very interesting, revealing certain new elements in the fauna of the Territory, and showing a number of new undescribed species already.

The work of my department for the remainder of the fiscal year will consist of (1) identification and arrangement of the material in insects, etc., now accumulated in my department, until the collections are fully worked up and systematically arranged. Papers to be published from time to time will record the new results obtained, and the description of new forms. Work will be done on determination of the *diptera* and *coccids* by myself, while the other material will be worked by other specialists.

2.—It is desired to publish a biogeographic paper embracing the results of the summer's work, in the White Mountains, especially, discussing the geographical distribution as exhaustively as the collection made will warrant. This cannot be done, in full, till the collections are fully worked over. This paper ought to be published as a scientific bulletin by the Station. For such contributions a *technical* series of bulletins should be established, as has already been done at very many stations. If this paper can not be published by the Station, it will be sent to some Scientific Society.

3.—The economic bearings of the biogeographical or life-zone work in all its details, will be studied for New Mexico. I can not do better than to refer you to Dr. Merriam's new *Bulletin 10, Division of Biological Survey, U. S. Department of Agriculture*, just out. This shows exactly what it is proposed to do in this department, except that the work will be confined to New Mexico, instead of to the whole United States. Dr. Merriam's details are defective; especially so is his information as to New Mexico, and a great amount of work will have to be done in mapping and determination of faunal areas, before this Territory can be presented biogeographically upon the map with correct details. The work the past summer has been exactly in line with this work.

4.—Such other routine work, in correspondence and general entomology, as may come up, will be attended to.

Very respectfully yours,

C. H. TYLER TOWNSEND.

TREASURER'S REPORT.

Agricultural Experiment Station of the New Mexico College
of Agriculture and Mechanic Arts.

In Account With

THE UNITED STATES APPROPRIATION, 1897-'8.

Dr.

To receipts from the Treasurer of the United States
as per appropriation for fiscal year ending June
30, 1898, as per Act of Congress approved March
2, 1887\$15,000 00

Cr.

ABSTRACT.

By Salaries	1	....	\$ 8,025 66
Labor	2	....	2,583 55
Publications	3	....	211 90
Postage and stationery.....	4	....	347 51
Freight and express.....	5	....	377 92
Heat, light and water	6	....	99 70
Chemical supplies	7	....	34 17
Seeds, plants, and sundry supplies	8	....	490 67
Fertilizers	9	....	90 49
Feeding stuffs.....	10	....	84 72
Library.....	11	....	15 45
Tools, implements, and.....machinery.	12	....	46 60
Furniture and fixtures.....	13	....	833 33
Scientific apparatus.....	14	....	" "

ABSTRACT.

Live stock	15	....	" "
Traveling expenses	16	....	795 45
Contingent expenses	17	540 58
Building and repairs.....	18	422 30
Balance			" "

Total.....	\$15,000 00
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SUPPLEMENTARY STATEMENT.

To Receipts from other sources than
the United States, for the year
ending June 30, 1897:

Fees	198 83
Farm products.....	\$ 127 20

Dr. \$326 03

By Building and Repairs.....	<i>Cr.</i> \$326 03
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MORRILL REPORT.

Seventh and Eighth Annual Reports of the President of the
College and the Treasurer of the Board of Regents
to the Secretary of Agriculture and the
Secretary of the Interior, under Act
of Congress of August
30, 1890.

1896-1897.

**Morrill Fund--For the Endowment of Colleges of Agriculture
and Mechanic Arts.**

REPORT OF THE PRESIDENT OF THE COLLEGE.

1. Condition and Progress of the Institution, for the Year Ended June 30, 1897.

The progress of the NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS for the year ending June 30th, 1897, has been marked, and in many respects satisfactory. There are decided evidences of growth and expansion, and a hopeful feeling among the Officers and the Regents.

The engine room, machine shop, draughting room, and physical laboratory are all located in the new building which was built in 1895 and are now fairly well equipped, and about in good operating condition. A new forty horse power boiler, thirty horse power engine of the latest design, iron planer, iron lathes with all modern improvements, drill-press, emery grinders, etc., are some of the most important additions to the shop equipment. The wood room has had some additions, chiefly, a new planing machine, and a number of new hand tools.

The issue of \$15,000.00 of Territorial bonds, having been approved by Congress, and the bonds having been sold, a part of the proceeds are now being used in putting up an Experiment Station building, in which will be located the College laboratories, as well as those of the Station. A part of this fund is also being used in the building of a girls' dormitory. These two buildings will probably be completed by the 1st of January, 1898.

The graduating class for the year consisted of three young gentlemen, all of whom completed the Scientific Course, and received the degree of B. S.

The course of study has been enlarged, and made to conform as near as possible to the requirements of the law establishing Agricultural Colleges, and to meet the needs and requirements of the locality in which it is situated. The requirements for admission into the Freshman class have been slightly raised, and are about in accordance with those recommended by the Committee of the Association of Agricultural College Presidents for standard Colleges.

The enrollment for the year was 153. The percentage of the increase in the College classes was slightly more than that of the Sub-Freshman Department. This latter Department, must of necessity, be large, until there are sufficient High Schools in the Territory to furnish students to the College, who are prepared to enter the Freshman Class.

2. *Receipts for and during the year ended June 30, 1897.*

(1)	Balance on hand July 1st, 1896	\$15,130.54
(2)	State Aid: (a) Income from endowment granted by State	
	(b) Appropriation for current expenses.....	2,614 43
	(c) Appropriations for buildings and other special purposes.....	17,177.58
(3)	Federal aid: (a) Income from land grant, act of July 2, 1862	
	(b) For experiment stations, act of	

March 2, 1887	15,000.00
(c) Additional endowment, act of August 30, 1890	22,000.00
(4) Fees and all other sources	826.62
Total.....	\$72,749.17

3. *Expenditures for and during the year ended June 30, 1897.*

(1) Instruction in the subjects specified in Sec. 1, act of August 30, 1890.....	\$25,605.99
(2) Instruction in all other subjects, if any, not men- tioned in Question 1 of this series.....)	
(3) Administrative expenses (President's, Secretary's, Treasurer's, Librarian's salary, clerical service, fuel, light, etc.).....	1,941.80
(4) Experiment Station	15,163.40
Total.....	\$42,711.19

4. *Property, year ended June 30, 1897.*

Value of all buildings, \$32,500.00; of other equipment, \$32,000. Value of above property (an estimate only is expected) not used for instruction in the subjects specified in Sec. 1 of act of August 30, 1890, buildings, \$2,000.00; of other equipment, \$1,500.00.

Total number of acres, 250; acres under cultivation, 100; acres used for experiments, 75; value of farm lands, \$10,000.00; amount of all endowment funds, none.

Number of bound volumes, June 30, 1897, 3,079; pamphlets, 750.

5. *Faculty during the year ended June 30, 1897.*

(1) College of Agriculture and Mechanic Arts:

	MALE.	FEMALE.
(a) Preparatory classes.....	1	2
(b) Collegiate and special classes..	13	1
Total, counting none twice....	13	3

(2) Number in all other departments (ex-

cepting duplicates)	1	0
(3) Number of staff Experiment Station ..	8	0

6. *Students during the year ending June 30, 1897.*

(1) College of Agriculture and Mechanic Arts:

	MALE.	FEMALE.
(a) Preparatory classes	48	23
(b) Collegiate and special classes ..	34	22
(c) Post Graduate courses	1	0

Total, counting none twice . . . 105 48

(2) Number in all other departments . . . 25 3

(3) Number of students that pursued course in agriculture, 2; mechanical engineering, 6; civil engineering, none; electrical engineering, none; mining engineering, none; architecture, none; household economy, none; veterinary science, none; military tactics, none; scientific, 24; special, 24.

(4) What degrees and how many of each kind were conferred in 1896-'97? On men, four; one Master of Science; three Bachelor of Science. On women, none.

(5) What and how many honorary degrees were conferred in 1896-'97? None. (Signed.)

C. T. JORDAN, A. M.,

President and Director.

Date: Oct. 1st, 1897.

Report of the Treasurer.

Receipts.

Balance on hand July 1st, 1896	\$16,643.93
Date of receipt of installment for 1896-'97 July 26th, 1896. Amount	22,000.00

Total available for the year ended June 30, 1897.. \$38,643.93

Disbursements.

Agriculture:—

1. For Salaries of Instructors:

George Vestal	\$ 800.06	
2. For facilities as follows:		
Text-books and reference books.....	26.63	
Apparatus, machinery, stock, and material	25.00	
Total.....	\$ 851.69	
Mechanic Arts:—		
1. For Salaries of Instructors:		
F. W. Brady	\$ 1,600.00	
Charles Mills.....	900.00	
Joseph F. Bennett.....	245.00	
Edward J. Coe.....	52.50	
2. For facilities as follows:		
Text-books and reference books ..	76.85	
Apparatus, machinery, stock, and material	4,796.41	
Total.....	\$ 7,670.76	
English Language:—		
1. For Salaries of Instructors:		
W. W. Robertson.....	\$ 1,000.00	
Ida M. Jones.....	900.00	
Ellen F. Gibson	450.00	
F. E. Lester.....	1,000.08	
Geraldine Combs	350.00	
Helen M. Macgregor.....	250.00	
Elizabeth Wickham.....	200.00	
2. For facilities as follows:		
Text-books and reference books....	198.28	
Apparatus, machinery, stock, and material.....	151.94	
Total.....	\$ 4,500.30	
Mathematical Science:—		
1. For Salaries of Instructors:		
Clarence T. Hagerty	\$ 1,600.00	
W. W. Robertson.....	839.95	
George W. Miles.....	750.00	

Ellen F. Gibson	450.00
Geraldine Combs.....	350.00
2. For facilities as follows:	
Text-books and reference books....	39.66
Apparatus, machinery, stock, and material.....	31.25
Total.....	\$ 4,060.86
Natural or Physical Science:—	
1. For Salaries of Instructors:	
Arthur Goss.....	\$1,200.00
J. D. Tinsley.....	1,200.00
George W. Miles	750.00
R. Fred Hare	750.00
2. For facilities as follows:	
Text-books and reference books....	236.52
Apparatus, machinery, stock, and material.....	613.82
Total.....	\$4,750.34
Economic Science:—	
1. For Salaries of Instructors:	
C. T. Jordan.....	\$1,857.29
John P. Owen.....	1,830.00
2. For facilities as follows:	
Text-books and reference books....	65.83
Apparatus, machinery, stock, and material.....	18.92
Total.....	\$3,772.04
Total expended during the year	\$25,605.99
Balance remaining unexpended July 1st, 1897	\$13,037.94

I hereby certify that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the institution named, and that said expenditures were applied only

to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life and to the facilities for such instruction. (Signed.)

DEMETRIO CHAVEZ, Treasurer.

1897-1898.

Report of the President of the College.

1. *Condition and progress of the institution for the year ended June 30, 1898.*

(1) The courses of study and methods of instruction were not materially changed.

(2) A building especially designed for laboratory work was completed during the year. The twenty-one rooms are all taken up by work for the Experiment Station, and botanical, chemical, entomological, and physiological laboratories for college classes. The cost of this building was about \$12,500.00. A dormitory for girls was also completed. The cost was about \$6,000.00.

(3) A dynamo and motor was added to the equipment of the mechanical department and is used for purposes of instruction solely.

2. *Receipts for and during the year ended June 30, 1898.*

- | | | |
|-----|---|-------------|
| (1) | Balance on hand July 1, 1897, over and above all indebtedness (excluding funded debt, if any) | |
| (2) | State aid: (a) Income from endowment granted by State | |
| | (b) Appropriation for current expenses | \$ 4,350.60 |
| | (c) Appropriations for building or for other special purposes | 296.63 |
| (3) | Federal aid: (a) Income from land grant, act of July 2, 1862 | |
| | (b) Additional endowment, act | |

	of August 30, 1890.	23,000.00
(c)	For experiment stations, act of March 2, 1887.	15,000.00
(4)	Fees and all other sources.	1,272.71
	Total.	
3.	<i>Expenditures for and during the year ended June 30, 1898.</i>	
(1)	Instruction in the subjects specified in Sec. 1, act of August 30, 1890.	26,444.30
(2)	Instruction in all other subjects, if any, not men- tioned in Question 1 of this series.	
(3)	Administrative expenses (President's, Secretary's, Treasurer's, Librarian's salary, clerical service, fuel, light, etc.)	2,713.65
(4)	Experiment Station	15,326.03
	Total	\$44,483.98

4. *Property, year ended June 30, 1898.*

Value of all buildings, \$51,000.00; of other equipment, \$36,000. Value of above property (an estimate only is expected) not used for instruction in the subjects specified in section 1 of act of August 30, 1890, buildings, \$12,000.00; of other equipment, \$2,000.00.

Total number of acres, 250; acres under cultivation, 100; acres used for experiments, 75; value of farm lands, \$10,000.00; amount of all endowment funds, none.

Number of bound volumes, June 30, 1898, 3,316; pamphlets, 1,000.

5. *Faculty during the year ended June 30, 1898.*

(1)	College of Agriculture and Mechanic Arts:		
		MALE.	FEMALE.
(a)	Preparatory classes	1	3
(b)	Collegiate and special classes.	14	3
(c)	Total, counting none twice.	14	3
(2)	Number in all other departments (except- ing duplicates)	1	2

(3) Number of staff of Experiment Station.... 12

6. *Students during the year ended June 30, 1898.*

(1) College of Agriculture and Mechanic Arts:

	MALE.	FEMALE.
(a) Preparatory classes	98	36
(b) Collegiate and special classes.....	54	26
(c) Post Graduate courses.....	1	

Total, counting none twice.....153 62

(2) Number in all other departments,

(3) Number of students that pursued courses in agriculture, 4; mechanical engineering, 10; civil engineering, 2; electrical engineering, none; mining engineering, none; science, 14; architecture, none; household economy, none; veterinary science, none; military tactics, none.

(4) What degrees and how many of each kind were conferred in 1897-'98?

On men, six—Bachelor of Science.

On women, two—Bachelor of Science.

(5) What and how many honorary degrees were conferred in 1897-'98? None.

(Signed.)

C. T. JORDAN, President.

Date: Dec. 28, 1898.

REPORT OF THE TREASURER

Receipts.

Balance on hand July 1st, 1897\$13,037.94

Date of receipt of Installment for 1897-'98, January

5th, 1898, amount..... 23,000.00

Total available for the year ended June 30, 1898.\$36,037.94

Disbursements.

Agriculture:—

1. For Salaries of Instructors:

George Vestal.....\$900.00

Fabian Garcia..... 500.00

2. For facilities as follows:

Text-books and reference books 7.72

Apparatus, machinery, stock,
and material 15.15

Total

\$1,422.87

Mechanic Arts:—

1. For Salaries of Instructors:

F. W. Brady\$1,800.00

Charles Mills 900.00

2. For facilities as follows:

Text-books and reference books 76.13

Apparatus, machinery, stock,
and material..... . 1,842.22

Total

\$4,618.35

English Language:—

1. For Salaries of Instructors:

W. W. Robertson\$1,000.00

F. E. Lester 1,000.02

Ida M. Jones 750.00

Ellen F. Gibson 450.00

Geraldine Combs..... 450.00

Helen M. Macgregor 400.00

Ida E. Freeman 175.00

Elizabeth Wickham..... 300.00

2. For facilities as follows:

Text-books and reference books 261.45

Apparatus, machinery, stock,
and material 233.14

Total

\$5,019.61

Mathematical Science:—

1. For Salaries of Instructors:

Clarence T. Hagerty.....\$1,800.00

W. W. Robertson 800.00

Ellen F. Gibson..... 450.00

Geraldine Combs 450.00

Joseph F. Bennett.....	600.00	
Ida E. Freeman.....	175.00	
Viola Peacock.....	146.00	
Janie Robertson.....	19.00	
Lunah Wallace	10.00	
2. For facilities as follows:		
Text-books and reference books	50.98	
Apparatus, machinery, stock, and material.....	52.80	
Total		\$4,553.78
Natural or Physical Science:—		
1. For Salaries of Instructors:		
Arthur Goss	\$1,000.04	
John D. Tinsley	1,200.00	
George W. Miles	1,600.00	
R. F. Hare	1,000.00	
2. For facilities as follows:		
Text-books and reference books	235.00	
Apparatus, machinery, stock, and material	1,720.08	
Total.....		\$6,755 12
Economic Science:—		
1. For Salaries of Instructors:		
C. T. Jordan	2,000.04	
John P. Owen	2,000.00	
2. For facilities as follows:		
Text-books and reference books	44.53	
Apparatus, machinery, stock, and material	30.00	
Total.....		\$4,074.57
Total expended during the year		\$26,444.30
Balance remaining unexpended July 1st, 1898...		9,593.64

I hereby certify that the above account is correct and true, and, together with the schedules hereunto attached, truly represents the details of expenditures for the period and by the in-

stitution named, and that said expenditures were applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life and to the facilities for such instruction.

(Signed.)

P. H. CURRAN, Treasurer.

TERRITORIAL FUNDS.

Seventh and Eighth Annual Reports of the Board of Regents
of the New Mexico College of Agriculture and Mechanic
Arts, to the Governor of the Territory, for
the two years ending November
30th, 1898.

1896=1898.

Territorial Funds==For College Buildings and for Substations.

Regents' Report.

Hon. M. A. Otero,

Governor of New Mexico:

Sir:—In accordance with section 60, chapter 138, of the Acts of the Legislative Assembly of the Territory of New Mexico, approved February 28th, 1889, relating to the New Mexico College of Agriculture and Mechanic Arts, the Regents of said College respectfully submit the following annual report including the reports of the President of the College, and the Treasurer of the Board.

The Board of Regents is now made up of the following members:

Miguel A. Otero, Governor, Ex-Officio.

Manuel C. de Baca, Supt. Public Instruction, Ex-Officio.

Jacinto Armijo, Las Cruces, term expires 1898.

Henry D. Bowman, Mesilla Park, term expires 1899.

G. A. Richardson, Roswell, term expires 1900.

A. A. Jones, Las Vegas, term expires 1901.

Philip H. Curran, Las Cruces, term expires 1902.

At the regular quarterly meeting, March, 1898, the Board was reorganized by re-electing the same officers as for the previous year: G. A. Richardson, president, and P. H. Curran, secretary and treasurer.

The present session opened on September 7th, 1898, under many encouraging circumstances and with an unusually large enrollment. The prevalence of small pox in the vicinity of the College prevented a much larger attendance, and has been a source of great trouble and annoyance. With this exception the work has progressed favorably and a profitable session is confidently looked for.

There has been a large increase in the Spanish speaking students, and students of Spanish descent, and it is the policy of the Board of Regents and the Faculty of the College to encourage to the fullest extent this class of students. Results in the highest degree satisfactory have so far attended efforts in this direction.

New buildings have been built since last report as follows: A large Science Hall in the campus north of the main building, and a Girls' Dormitory on the College farm west of the main building and on the avenue leading through the College farm. These buildings are well equipped and add greatly to the plant and efficiency of the College. Good board, including room, fuel, light and washing is now furnished young ladies for fifteen dollars per month. A club house for young men has been built as a private enterprise on the grounds near the College, and a good cook employed. Here young men are enabled to get board at about \$10.00 to \$12.00 per month. A good dormitory and boarding house for young men is a crying need.

The present water supply is wholly inadequate and it is earnestly hoped that the Legislature will do something to relieve the present unsatisfactory condition in this particular.

The Territorial fund is scarcely adequate to meet the demands that must be made upon it, viz: to pay a teacher of Spanish, janitors, fuel, lights, insurance, printing catalogues, advertising, stationery, student labor, traveling expenses and all other incidental expenses, none of which can be paid out of the Morrill and Hatch funds.

The department at Washington is constantly opposing the use of any of the Hatch fund for the maintainance of the substations, and it seems that the time has now come when the Territory must make some provision for these substations or they must be discontinued.

For detailed information as to the work of the Agricultural Experiment Station, the Regents call attention to the eighth and ninth annual reports of the Hatch fund. For information relating to the work of the College, see report of the President which is attached to this report.

Herewith you will find a list of the professors, instructors, and assistants employed in the College for the year 1898-1899:

Cornelius T. Jordan, A. M., President and Professor of Political Science; Clarence T. Hagerty, M. S., professor of Mathematics and Astronomy; Arthur Goss, M. S., A. C., Professor of Chemistry; *George Vestal, Professor of Agriculture and Horticulture; Frank W. Brady, M. E., Professor of Mechanical and Civil Engineering; Ida M. Jones, Professor of Spanish; T. D. A. Cockerell, Professor of Entomology and in charge of Physiology and Zoology; Hiram Hadley, A. M., Professor of History and Pedagogy; Elmer O. Wooton, A. M., Professor of Botany, Geology, and Physics; Frederick F. Barker, LL. B., Professor of English and Latin; Ralph Roy Larkin, B. S., Principal of the preparatory department and in charge of the Sub-Freshman Class; Frank E. Lester, Instructor in Stenography and Typewriting, Librarian, College Clerk and Secretary to the Faculty; R. Fred Hare, M. S., Instructor in Chemistry; Charles Mills,

**Died, October 24, 1898.*

Instructor in College Shops; Ellen F. Gibson, Instructor in Elocution and Physical Culture, and Assistant in the Preparatory Department; Joseph F. Bennett, Jr., B. S., Instructor in Book-keeping; Fabian Garcia, B. S., Assistant in Agriculture and Horticulture; Geraldine Combs, Assistant in the Preparatory Department; Ida E. Freeman, Assistant in the Preparatory Department and Matron of the Girls' Dormitory; Du Val Garland Cravens, B. S., Assistant in the Engineering Department; Katherine Doughty, Assistant in the Preparatory Department; Humboldt Casad, Assistant in Agriculture and Horticulture; Elizabeth Wickham, Assistant Librarian; Helen Mar Macgregor, Assistant College Clerk.

Respectfully, G. A. RICHARDSON, President.

PHILIP H. CURRAN, Secretary.

PRESIDENT'S REPORT.

To the Honorable Board of Regents of the New Mexico College of Agriculture and Mechanic Arts.

Gentlemen:—

The seventh session closed on May 25th with highly creditable commencement exercises. The graduating class,—Misses Ivah Rebekah Mead, Lottie Sweet, and Messrs. William Alexander Sutherland, Isaac Henry Stanley, DuVal Garland Cravens, Edwin Eugene Casey, Charles Edward Mead and George Morgan Williams offered theses that showed careful work and painstaking investigations, and on Commencement Day delivered most creditable orations. The session was a successful one. The total enrollment reached 215, an increase of 62 over the previous year. The increase was well distributed among the different departments of the College. Four collegiate courses of four years each, viz:—Course in Agriculture, Mechanical Engineering, Civil Engineering and a Scientific course are offered. Special and shorter courses in Book-keeping, and Stenography and Typewriting are also offered. The College is still compelled to have a sub-freshman or preparatory department, and this condition will exist until there are sufficient high

schools in the Territory to prepare students for College work. In many of the States these departments are maintained, and quite a number of high grade colleges believe that their success in College work has been largely the result of good preparation in their sub-freshman departments. Owing to the thorough training given in the lower departments the number who enter the College proper is constantly increasing, and the requirement for admission in to the Freshman class has been persistently raised until now it is higher than that of most of the Agricultural Colleges in the neighboring States and Territories, and fully equal to the average in the whole United States. In the Faculty the leading Universities and Scientific schools of the country are represented and the personnel of the Professors and Instructors is such as appeals to the people of the Territory for their confidence and unqualified support.

Last year the amount received from the United States Government under Act of Congress of August 30th, 1890, was \$23,000. This amount was expended in accordance with the provisions of that Act, and the expenditure has been approved by the Honorable Commissioner of Education at Washington. The amount received from the Territorial fund for the year was slightly over \$5,000. This amount was used to pay for teaching Spanish, for printing catalogues, for insurance, for postage, paying janitors, and for other incidental expenses, for building and for such other necessary expenses that could not be paid for out of the U. S. government appropriation.

During the year the College has grown in the confidence of the people, and has greatly increased its facilities for doing successful work. A new science hall has been completed and is almost equipped. This building has 17 good rooms and in it are located the chemical, botanical entomological, and biological laboratories. The material used in the construction of this building is of the best, and the new apparatus purchased is of the latest pattern and design. A Girls' Dormitory has also been built. This is a large brick building finished in natural wood with reception room, dining room, matron's rooms, kitchen and closets on first floor; the second has large well finished airy

rooms in which young ladies live. Good board and washing are furnished for \$15.00 per month. The College has not been able as yet to build a dormitory for young men, but good, substantial board in private families living near the College can be had for \$16.00 to \$18.00 per month, exclusive of washing. A number of young men have associated themselves in a club and thus reduced the price of board and lodging to \$8.00 or \$10.00 per month.

The College needs an adequate water supply for purposes of irrigation and without this it is almost impossible to do a great variety of work of great importance to the people of this Territory and of the whole arid region. Another pressing need is a new Dormitory for young men. The capacities of the private boarding houses in the immediate neighborhood is taxed to the utmost to accommodate the male students who come to us, and a large number of high grade students who would come from the east and who would make a most valuable addition to our student body do not come because of our inability to care for them properly. A Gymnasium for both sexes is also badly needed, and it is the desire of the officers of the College to answer this need at the earliest possible time.

Respectfully submitted,

CORNELIUS T. JORDAN, A. M., President.

June 30th, 1898.

TREASURER'S REPORT.

1896=1897.

Financial Statement No. 1--Territorial General Fund.

Receipts and Disbursements for the year ending Nov. 30th, 1897.

RECEIPTS:

From Territory	\$2291.03
From Tuition fees	712.30

From Sub-station Farm products	15.90	
From transfer from Additional Buildings Fund	10.91	
		\$3030.14

DISBURSEMENTS:

For Building, Improvements and Repairs.....	\$ 408.00	
For Furniture and Property....	134.90	
For Insurance	500.00	
For Miscellaneous Expenses....	533.95	
For Text-Books.....	7.81	
For Student Labor	443.45	
For Traveling Expenses.....	1055.15	
For Stationery, Printing, and Ad- vertising.....	430.27	
For Heat, Light and Water.....	65.75	
For Salaries.....	685.83	
For Transfer to Las Vegas Sub- station fund to cover overdraft	18.68	
		4283.79
Total overdraft as per Annual Report of Dec. 1, 1896.....	6939.14	\$11,222.93
Net overdraft.....	\$ 8192.79	

Financial Statement No. 2.—Las Vegas Sub-Station Fund.

Receipts and Disbursements under Territorial Act of Feb. 23rd,
1893, for the year ending Nov. 30th, 1897.

Received from Territory.....	\$15.09	
Received from Territorial General Fund to balance account	16.68	
		\$31.77
Overdraft reported Dec. 1st, 1895.....		\$31.77
(Account closed.)		

Financial Statement No. 3.—Pecos Valley Sub-Station Fund.
 Receipts and Disbursements under Territorial Act of Feb. 23rd,
 1893, for the year ending Nov. 30th, 1897.

RECEIPTS:

Balance on hand Dec. 1, 1896,	
per last Annual Report	\$1812.10
From Territory.....	70.09
	<hr/> \$1882.19

DISBURSEMENTS:

For Fencing.....	\$717.99
For Preparing Grounds	200.
For Artesian Well	599.58
For Flume, etc	63.95
For Surveying.....	5.
For Labor and Sundries.....	33.62
	<hr/> \$1620.14

Balance on hand..... \$262.05

Financial Statement No. 4.—Additional College Buildings Fund.
 Receipts and Disbursements under Territorial Act of Feb. 23rd,
 1893, for the year ending Nov. 30th, 1897.

Received from Territory.....	\$10.91
Transferred to Territorial General Fund to ap- ply on balance due on College building....	10.91
(Account closed.)	

Financial Statement No. 5.—Territorial Building Fund.

Receipts and Disbursements under Territorial Levy for the 46th
 and 47th Fiscal Years, for the year ending Nov. 30th, 1897.

RECEIPTS.

Balance on hand, Dec. 1, 1896, per last	
Annual Report.....	\$4926.41
From Territory.....	805.07
	<hr/> \$5731.48

DISBURSEMENTS.

For Completion of Adobe Shop ..	\$ 94.05
For Windmill	234.42
	<hr/> 328.47

Balance on hand.....\$5403 01

Financial Statement No. 6.—Territorial Bond Issue Fund.
 Receipts and Disbursements under Act of Feb. 27th, 1895,
 authorizing the issue of \$15,000 Territorial Bonds, for
 the year ending Nov. 30th, 1897.

RECEIPTS:

By Sale of Bonds..... \$14,250.

DISBURSEMENTS:

For Advertising Bonds.....	\$ 46.50
For Architects' Fees.....	704.10
For Superintendent's Fees.....	41.80
For Express and Telegrams.....	28.35
For Contractor's Estimate No. 1..	2000.
For Contractor's Estimate No. 2.	2756.
For Contractor's Estimate No. 3.	3389.
	<hr/>
	8965.75
	<hr/>
Balance on hand.....	\$5284.25

1897=1898.

Financial Statement No. 1.—Territorial General Fund.
 Receipts and Disbursements for the Year ending Nov. 30th,
 1898.

RECEIPTS:

From Territory.....	\$5962.92
“ Tuition fees.....	900.00
“ Sub-Station Farm Products.....	9.25
“ Miscellaneous Fees.....	37.46
	<hr/>
	\$6909.63

DISBURSEMENTS:

For Building, Improvements and Repairs.....	\$ 283.22
“ Brick.....	80.
“ Insurance.....	650.
“ Miscellaneous Expenses....	559.80

" Text Books	23.10
" Student Labor	650.15
" Traveling Expenses.....	623.25
" Stationery, Printing and Ad- vertising.....	813.06
" Heat, Light and Water	119.34
" Girls' Dormitory	1083.84
" Salaries	1613.02
" Furniture and Property	738.08
	<hr/>
	\$7236.86

Overdraft, as per Annual Report of Dec. 1, 1897 (above).....	8192.79	
	<hr/>	15,429.65
Net Overdraft.....		<hr/>
		\$8520.02

Financial Statement No. 2. — Pecos Valley Sub-Station Fund.

Receipts and Disbursements under Territorial Act of Feb.
23rd, 1893, for the year ending Nov. 30th, 1898.

Balance on hand, Dec. 1, 1897, per last Annual Report (above)	\$262.05
Paid for Pipe fittings	20.00

Balance on hand.....	<hr/>	\$242.05
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Financial Statement No. 3.—Territorial Building Fund.

Receipts and Disbursements under Territorial Levy for 46th
and 47th Fiscal Years, for the Year ending Nov. 30th, 1898.

RECEIPTS.

Balance on hand Dec. 1, 1897, per last Annual Report (above)	\$5403.01
From Territory.....	334.67
	<hr/>
	5737.68

DISBURSEMENTS:

For Club House Building.....	350.
	<hr/>
Balance on hand.....	\$5387.68

Financial Statement No. 4.—Territorial Bond Issue Fund.

Receipts and Disbursements under Act of Feb. 27th, 1895, authorizing the issue of \$15,000 Territorial Bonds, for the year ending Nov. 30th, 1898.

RECEIPTS:

Balance on hand Dec. 1, 1897, per last Annual

Report (above).....\$5284.25

DISBURSEMENTS:

For Superintendent's Fees.....\$ 250.80

" Contractor's Estimate No. 4..... 3780.

" " " " 5 2400.

" " " " 6..... 1865.

" Extra on Contract..... 253.63

" Plumbing..... 273.20

" Dormitory sewer and cesspool 76.30

" Bond and Contract 40.

" Labor 8.15

\$8947.08

Overdraft \$3662.83

TERRITORY OF NEW MEXICO, }
County of Dona Ana. } ss.

Granville A. Richardson, President of the Board of Regents of the New Mexico College of Agriculture and Mechanic Arts, and Philip H. Curran, Secretary and Treasurer of the said Board of Regents, say that the foregoing financial statements do represent a true and correct statement of all monies received and disbursed by and for the New College of Agriculture and Mechanic Arts, for and during the periods named and the purposes stated in said financial statements, and that properly signed vouchers are on file for all disbursements shown by said financial statements to have been made.

IN WITNESS WHEREOF we have hereunto attached the seal of

the said Board of Regents, and subscribed our names.

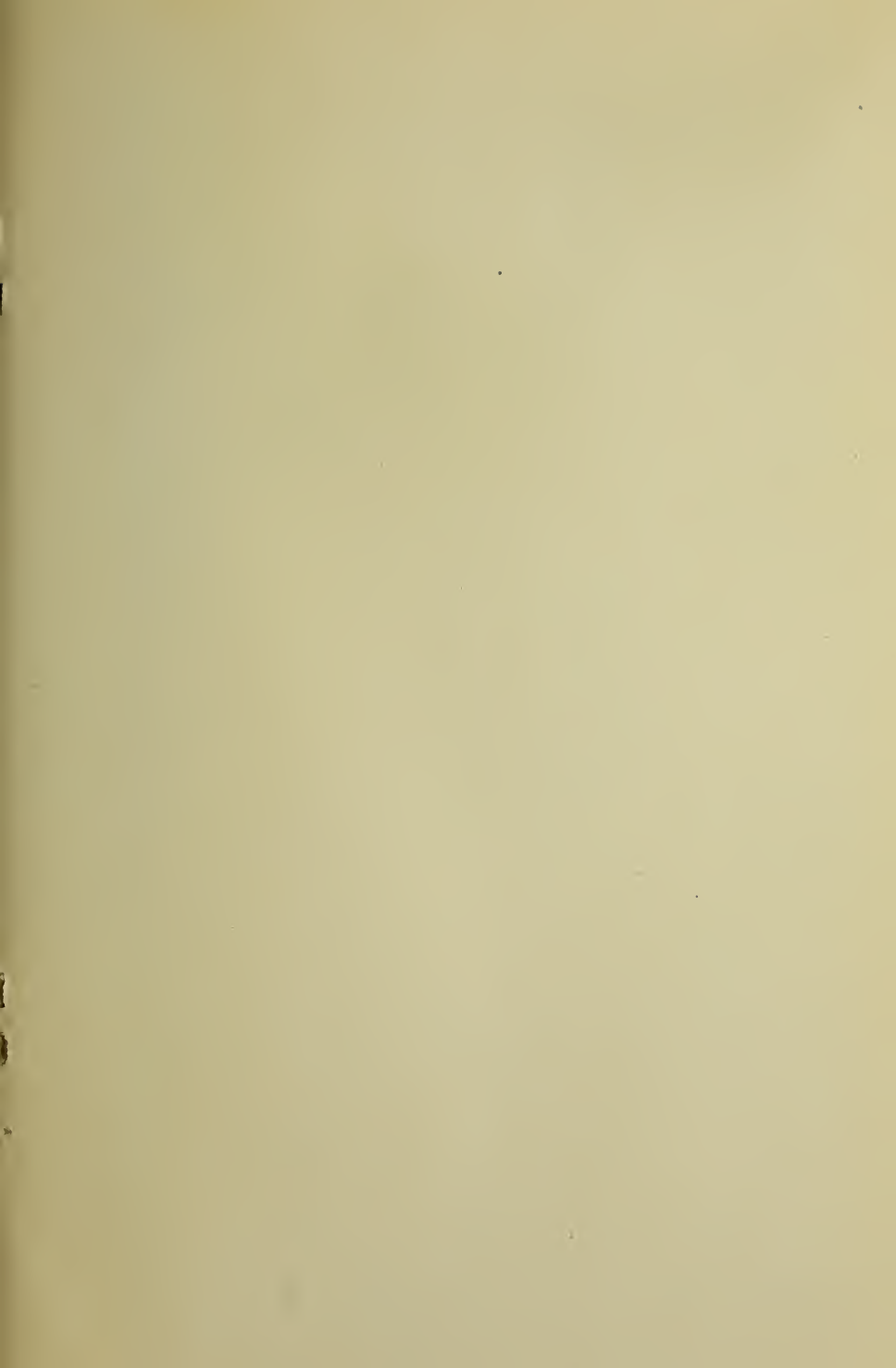
(Signed.)



(Signed.)

GRANVILLE A. RICHARDSON,
President of the Board of Regents
of the New Mexico College of
Agriculture and Mechanic Arts.

PHILIP H. CURRAN.
Secretary and Treasurer of the
Board of Regents of the New
Mexico College of Agriculture
and Mechanic Arts.





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